Ineffectiveness of AIDS Education and HIV Antibody Testing in Reducing High-Risk Behaviors among Injection Drug Users

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ABSTRACT

The effectiveness of education in reducing high-risk human immunodeficiency virus (HIV) transmission behaviors was examined in 313 injection drug users. Involvement in high-risk behaviors was assessed via structured interview at study entry and 4 months following the intervention. Subjects were randomly assigned to (1) AIDS education, (2) AIDS education with optional HIV antibody testing, or (3) a wait list. The sample as a whole decreased its involvement in high-risk behaviors, but there were no significant differences as a function of experimental group assignment. (*Am J Public Health.* 1992;82:573–575)

Introduction

Several reports indicate that injection drug users (IDUs) are decreasing their sharing of injection equipment and increasing their use of bleach to clean shared equipment.[1–3] Smaller decreases in high-risk sexual behaviors by IDUs have been found by some but not all investigators.[4] The primary acquired immunodeficiency syndrome (AIDS) prevention tools used to date with IDUs have included mass media education, street outreach education (often involving the provision of bleach and free condoms), human immunodeficiency virus (HIV) antibody testing and counseling, and educational programs for targeted subgroups. Although reductions in risk behaviors are often attributed to these educational and exhortative efforts,[3] no research using randomly assigned control groups has demonstrated the efficacy of specific educational prevention interventions.

The research reported here tested the hypothesis that a 90-minute AIDS education package and knowledge of one's HIV status will reduce high-risk behaviors among IDUs in treatment. A 90-minute educational format was chosen because it seems typical of interventions provided by drug abuse treatment programs with limited resources.

Methods

Three hundred thirteen IDUs receiving or seeking treatment in Seattle, Wash, served as subjects. The subjects were recruited from Evergreen Treatment Services, a nonprofit methadone maintenance program, and the Addictions Treatment Center of the Veterans Affairs Medical Center. The subjects volunteered to participate in an AIDS prevention project and gave informed written consent. They received $30 to defray expenses for each interview. The subjects were representative of clients in treatment in these settings with respect to demographics and involvement in high-risk behaviors.[5]

At enrollment into the project, all subjects were assessed via a structured interview regarding high-risk behaviors.[5] Immediately following this initial interview, all subjects were randomly assigned to one of three AIDS prevention intervention conditions: (1) a 90-minute group AIDS education session, (2) the AIDS education session plus optional HIV antibody testing, or (3) a 4-month wait list.

The AIDS education sessions were conducted by two trained facilitators who lectured from a scripted format while also responding to questions and allowing discussion. The format covered considerable information about the transmission of HIV, the medical aspects of AIDS, HIV antibody testing, and a three-tiered risk reduction strategy: (1) abstinence from illicit drug use, especially injectables, and celibacy; (2) no sharing of injection equipment and long-term monogamy with a known low-risk partner; (3) cleaning of injection equipment with bleach and use of condoms for all sexual activity. A highly emotional videotape, *Drugs and AIDS: An Appeal to Users*,[6] featuring a recovering addict reinforcing the risk reduction strategy, was shown. Cleaning of a syringe with bleach and application of a condom to a dildo were demonstrated. Small vials containing bleach and a starter pack of condoms were given out at the completion of the session.

Four months after the intervention, all subjects who could be located (n = 218) were assessed for behavioral changes in a

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TABLE 1—Demographics and High-Risk Behaviors of the Sample

	Initial Assessment (n = 313)		Follow-up Assessment: Completers (n = 218)		Follow-up Assessment: Noncompleters (n = 95)		Analysis[a]
	Mean (SD)	Median	Mean (SD)	Median	Mean (SD)	Median	
Age	38.5 (7.3)	38.0	39.1 (7.8)	37.0	37.1 (5.8)	37.0	$t = 2.5$*
Education	12.8 (2.2)	13.0	12.7 (2.2)	13.0	13.2 (2.0)	13.0	$t = 1.8$
Months in current treatment	20.3 (31.7)	6.0	23.8 (33.8)	8.0	12.4 (24.4)	2.0	$z = 5.3$***[b]
No needle-sharing partners							
Past year	4.1 (11.3)	1.0	3.1 (6.6)	1.0	6.5 (17.6)	1.0	$z = 1.4$
Past 30 days	0.4 (1.4)	0.0	0.3 (0.7)	0.0	0.6 (2.2)	0.0	$z = 0.6$
Males only							
No. female partners	4.0 (15.0)	1.0	2.5 (3.0)	1.0	7.0 (25.1)	2.0	$z = 2.2$*
Condom use, %	9.7 (22.6)	0.0	8.9 (22.9)	0.0	11.0 (22.0)	0.0	$z = 1.4$
Females only							
No. male partners	3.8 (20.5)	1.0	4.1 (22.8)	1.0	2.8 (4.9)	1.0	$z = 0.7$
Condom use, %	12.8 (26.1)	0.0	11.5 (26.3)	0.0	18.9 (25.4)	2.0	$z = 2.2$*
	n (%)		n (%)		n (%)		
Sex							
Male	225 (71.9)		148 (67.9)		77 (81.1)		
Female	88 (28.1)		70 (32.1)		18 (18.9)		$\chi^2 = 5.7$**
Race							
White	215 (68.7)		155 (71.1)		60 (63.1)		
Black	76 (24.3)		50 (22.9)		26 (27.4)		$\chi^2 = 0.3$
Hispanic	10 (3.2)		6 (2.8)		4 (4.2)		
Other	12 (3.8)		7 (3.2)		5 (5.3)		
Marital status							
Married	65 (28.4)		49 (22.5)		16 (16.8)		
Not married	248 (71.6)		169 (77.5)		79 (83.2)		$\chi^2 = 0.3$
Employment status							
Employed	89 (28.4)		60 (27.5)		29 (30.5)		
Unemployed/disabled	224 (71.6)		158 (72.5)		66 (69.5)		$\chi^2 = 0.6$
Primary drug abused							
Opiates	231 (74.5)		177 (81.2)		54 (56.8)		
Cocaine	36 (11.6)		16 (7.3)		20 (21.1)		$\chi^2 = 16.1$***
Other	43 (13.9)		25 (11.5)		21 (22.1)		
Recruitment source							
Methadone program	229 (75.1)		176 (80.8)		53 (58.2)		
Intensive outpatient[c]	27 (8.9)		20 (9.2)		7 (7.7)		
Inpatient[c]	49 (16.1)		18 (8.3)		31 (34.1)		$\chi^2 = 19.7$***
Disinfection of needles with bleach							
Always/usually	35 (17.0)		26 (18.6)		9 (13.6)		
Sometimes/rarely/ never	171 (83.0)		114 (81.4)		57 (86.4)		$\chi^2 = 0.4$

[a]Analyses are based on a comparisons between follow-up completers and noncompleters.
[b]The z estimate is based on the Mann-Whitney U statistic.
[c]Groups were collapsed for statistical analysis.
*$P < .05$
**$P < .01$
***$P < .001$

structured interview similar to the initial interview. The interviewers were blinded to the subjects' educational group assignments. All outcome measures of interest were dichotomized. Changes from initial to follow-up assessment were analyzed by means of the McNemar statistic.

Results

Table 1 contains demographic data for the entire sample and comparisons of follow-up completers and noncompleters. As one might anticipate, completers were more stable than noncompleters. The sample was knowledgeable about AIDS transmission at entry. In response to the open-ended question "What do you know about how people get AIDS?" 90.1% spontaneously mentioned needle sharing and 69.6% mentioned heterosexual activity. To true-false questions concerning means of contracting AIDS, 99% correctly identified needle sharing, 98.7% indicated sexual activity, and 96.8% knew that condoms could reduce risk.

Only 3 subjects (1.4%) of the 213 tested were HIV seropositive.

Table 2 presents the needle-use and sexual risk variables for the sample, initially and at follow-up. On all needle-use variables, significant improvement occurred. Both men and women reduced their numbers of sexual partners; an increase in condom use occurred only for males with multiple partners. No significant differences existed among the three experimental groups on any demographic or high-risk behavior variables at initial assessment. Nor were differences found among experimental groups on any outcome measures.

Discussion

Like other investigators, we observed that IDUs, as a group, were reducing their involvement in high-risk behav-

TABLE 2—Changes in High-Risk Behaviors between Initial and Follow-up Assessments

	Initial Assessment		Follow-up Assessment		
	n	(%)	n	(%)	McNemar
Needle use risk					
Using IV drugs	178	(81.6)	114	(52.3)	$\chi^2 = 47.3$***
Sharing needles[a]	140	(78.7)	54	(46.6)	$\chi^2 = 24.8$***
Cleaning with bleach[b]	7	(13.5)	24	(46.2)	Bimodal $P = .0015$
Sexual behaviors—males					
Multiple partners	65	(43.9)	43	(29.1)	$\chi^2 = 30.6$***
Condom use >50%[c]	0	(0.0)	10	(20.0)	Bimodal $P = .002$
Sexual behaviors—females					
Multiple partners	22	(31.8)	6	(8.7)	Bimodal $P < .001$
Condum use >50%[c]	4	(22.0)	3	(16.6)	Bimodal $P = 1.0$

[a]Only subjects using IV drugs during either period were utilized.
[b]Only subjects sharing injection equipment during either period were utilized.
[c]Only subjects with multiple partners during either period were utilized.
***$P < .001$

iors. Nonetheless, in contradiction to our original hypothesis, we found no differential benefit from a 90-minute AIDS education program with a random-assignment control-group design. Our results accord with those of Gibson et al.[7] and McCusker et al.,[8] who found no differences between experimental educational and minimal control-group interventions when random assignment designs were used.

We feel the failure of the interventions probably reflects their essential misdirection. They were designed primarily to provide information, under the assumption that the subjects had little knowledge about AIDS. In fact, the subjects demonstrated remarkably good knowledge prior to the interventions.

Other factors that may have contributed to the absence of educational effects include the following: (1) The generally low rate of needle sharing in this sample[5,9,10] may have provided a basement effect for the number of needle-sharing partners variable. (2) Informal communication about the education between subjects in the education and wait list conditions could have confounded the intervention. Magura et al.[11] demonstrated that peer influences were the most salient predictors of needle sharing. (3) Public service education and outreach campaigns in progress at the time of the study could have imparted to wait-list subjects information similar to that provided in the intervention. (4) The initial assessment interview may have served as a positive intervention by heightening subject awareness in an already knowledgeable group.

Despite these potential confounders, our results call into question the extensive expenditure of resources on AIDS education that is primarily information-giving in nature with already knowledgeable populations. Future investigations should explore alternative interventions that might be more effective.

The lack of differential behavior change in the subjects receiving HIV testing compared to those not tested may be related to the seronegative status of the vast majority tested. Previous research suggests that persons who are seropositive, but not those who are seronegative, change their behavior after learning their status.[12,13] Our findings suggest that HIV testing in low endemic areas is unlikely to result in reductions in high-risk behaviors among IDUs. This implication does not diminish the importance of HIV testing programs in these areas for seroprevalence monitoring and early medical intervention with persons found to be seropositive. □

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